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Dear Mr. Lundberg:

INTRODUCTION

On May 10, 2002 the U.S. Army Corps of Engineers released "The Draft Interim Report for the Upper Mississippi River and Illinois Waterway Restructured System Navigation Feasibility Study." The Corps hailed this document as "a blueprint for moving forward with the feasibility study to ensure the UMRS [Upper Mississippi River System] continues to be a nationally treasured ecological resource as well as an effective transportation system." Draft Interim Report for the Upper Mississippi River and Illinois Waterway Restructured System Navigation Feasibility Study, 2 (May 10, 2002).

The stated purpose of this effort is "to reduce lock congestion" while achieving an environmentally sustainable system that addresses ecosystem and floodplain management needs related to navigation. § 1.1 Draft Interim Report, 11.

Significantly, the Draft Interim Report purports to establish the "existing and future without project conditions" for use in the final study. § 2.1, Draft Interim Report, 35. Because the Corps will not further review these conditions after the Interim Report is finalized, this Draft Interim Report is itself a decision document and not merely a preliminary "draft."

Public Employees for Environmental Responsibility (PEER) hereby submits the following comments to the Draft Interim Report for UMRS:

SUMMARY OF COMMENTS

This Draft Interim Report:

- Violates the National Environmental Policy Act (NEPA), the Economic and Environmental Principles and Guidelines for Water and Related Land Resources

Implementation Studies (P&G), and the Corps' own Engineering Regulations (ER);

- Mischaracterizes, ignores, and contradicts the explicit recommendations of the National Research Council (NRC) of the National Academy of Sciences; and

- Constitutes a significant step backwards in Corps planning to the detriment of the true system stakeholders, the taxpayers.

DETAILED COMMENTS

I. The Draft Interim Report violates the National Environmental Policy Act, the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, and the Corps' own Planning Guidance and Procedures for Implementing NEPA.

A. The determination of without project conditions contained in the draft interim report is a violation of federal law and regulation.

NEPA, 42 U.S.C. § 4321 et seq., requires an objective scientific evaluation of a plan's environmental and economic impacts; failure to perform an objective benefit and cost analysis violates both the spirit and letter of the law. The Council on Environmental Quality (CEQ) has laid out the precise procedure for drafting an Environmental Impact Statement (EIS), including a determination of the "without action [project] condition." *See* CEQ NEPA Regulations, 40 C.F.R. §§ 1500-1508 (2002).

The Corps' own regulations governing NEPA compliance require, *inter alia*, that "[a]gencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in the environmental impact statements…." Procedures for Implementing NEPA, ER 200-2-2 (1988), 33 C.F.R. § 230 (2002). The Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, promulgated in 1983 by the Water Resources Council pursuant to the Water Resources Planning Act, 42 U.S.C. § 1962(a)(2), establishes criteria for the evaluation of all federal water resource projects; the Planning Guidance Notebook, ER 1105-2-100 (2000), implements P&G for the Corps. These guidelines require that all Corps planning studies use the potential consumers' willingness to pay as the measure of national economic development benefits.

Despite these requirements, the Corps, in determining the without project conditions for the Draft Interim Report, rejects the use of elasticity as a factor in the demand function. It makes an incredible assertion when it states that "[d]emand elasticity is not an issue given the decision to employ a non-spatial model that does not incorporate the notion of demand elasticity." § 1.8.2 Draft Interim Report, 31. The "non-spatial model" referred to is the Tow Cost Model (TCM), whose use is a clear violation of NEPA because it relies on a method of economic analysis that disregards the willingness to pay for

incremental units of output afforded by potential system actions (*i.e.*, what economists call "elasticity").

Elasticity is the measure of beneficial National Economic Development (NED) impacts of potential system action mandated by P&G, producing a cost-benefit ratio consistent with environmental protection. §§ 1.6.3, 1.7.29(b) P&G (1983). Saying that elasticity of demand is not an issue in the NED evaluation of potential navigation projects is like saying that gravity is not an issue in the launch of the space shuttle.

Elasticity of demand is the NED issue. If elasticity is not an issue because of the use of TCM, how can that model accurately measure the willingness to pay for incremental units of output afforded by an action or plan?

Federal law also mandates that agencies "shall not commit resources prejudicing selection of alternatives before making a final decision." 40 C.F.R. § 1502.2 (2002). By relying upon TCM, the Corps artificially inflates NED benefits to produce a result that favors immediate, large-scale improvements. Because Corps hierarchy is known to favor these types of projects, whether or not they are necessary, it becomes apparent that the decision to disregard elasticity of demand in the Draft Interim Report was made to further these ends.

Response to Comment A. The "Tow Cost Model" referred to in the comment is a modeling system developed by the Corps of Engineers to estimate the expected benefits of new inland navigation construction projects. The model actually includes the Waterway Analysis Model, the Tow Cost model and the Equilibrium Model. The analysis begins with information on projected shipments of commodities on the inland navigation system unconstrained by capacity, projected rates, charges for river, and competing land modes of transportation. The capacity of the navigation system is measured with and without the improvements under evaluation. The models utilize this capacity information in an iterative fashion balancing waterway delay costs against the cost of shipping by an alternative mode to arrive at with and without project traffic levels and transportation costs. The benefits of the proposed improvement are the differences between with and without improvement project cost including reduced delay costs and the savings in transportation costs for waterway movement as compared to overland movement.

The "Tow Cost Model" does not violate Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&G) and Corps planning Guidance. P&G and Corps planning guidance indicates that the basic economic benefit of a navigation project is the reduction in the value of resources required to transport commodities or, in other words, transportation cost savings. P&G, Section VI, ¶ 2.6.2. Transportation cost savings as a measure of willingness to pay is the underlying foundation of all the benefit evaluation procedures described in the P&G for both inland and deep draft navigation at Section VI ¶ 2.6.5-2.6.14. and Section VII ¶ 2.7.4. The TCM model does not violate NEPA. The system of economic modeling developed and refined over many years by the Corps has been used in numerous

feasibility reports and Environmental Impact Statements supporting construction authorizations for major investments in inland navigation improvements. These projects have successfully completed the NEPA process and many have been constructed or are under construction.

The elasticity of demand and inflation of benefit issues raised refer to the fact that the framework of the "Tow Cost Model" assumes that individual waterway movements are not sensitive to the price of water transportation until the level of the next least costly mode of transportation is reached. At that point all shipping will transfer to the next least costly mode. Alternative uses of the commodity (typically associated with a different destination and perhaps a different mode) and the possible substitution between supply regions are not recognized. The model assumes that demand for waterborne transportation is inelastic until costs reach the level of the presumably land based mode. Whether this assumption results in a significant increase of benefits depends on the actual transportation price sensitivity of the commodities shipped.

The Corps has a continuing research and development program aimed at improving economic models that incorporate spatial equilibrium concepts. The feasibility study will use existing and accepted economic models while research and development on improved models moves forward. This will occur within the context of an adaptive management process that will review study results as new models are developed, tested and accepted. Furthermore, the process for developing the feasibility study recommendations will recognize the high level of uncertainty surrounding projections of navigation system traffic. This will allow for a decision process to seek alternative plans that are justified under a wide range of future system traffic conditions and enjoy broad support.

The Interim Report is not a decision document and does not commit resources prejudicing selection of alternatives. The formulation of alternatives and decision process will be documented in the feasibility study.

B. The Draft Interim Report flies in the face of the Corps' own Economic and Environmental Principles and Guidelines (P&G).

Both P&G and the Planning Guidance Notebook require Corps planning studies to evaluate all federal water resource projects based on the most likely future project parameters. *See* § 1.4.9 P&G (1983), § 2-4 Planning Guidance Notebook, ER 1105-2-100 (2000).

By contrast, the Draft Interim Report uses scenario-based planning to establish these future project parameters. § 1.8.3 Draft Interim Report, 30. Nowhere in the report, however, does the Corps objectively analyze the likelihood of these scenarios. Without such a determination, it is impossible to accurately decide which of the scenarios offered is "most likely" pursuant to Corps regulations. This allows the Corps to arbitrarily choose that scenario which enhances the need for immediate, large-scale project

improvements instead of evaluating the project according to P&G and the Planning Guidance Notebook.

Furthermore, the Draft Interim Report has perverted the planning objective contribution to NED by improperly reducing the study objective to transportation savings or reductions in congestion. Reducing lock congestion may or may not be in the NED interest dependant upon the costs and effectiveness of the measures available to reduce lock congestion. Thus, the narrowed restatement of the study objective to "reduce lock congestion" is another violation of P&G and a complete contradiction of the NRC recommendation to broaden the study scope.

Finally, all references to "transportation costs savings" should be removed from the Draft Interim Report. As the least-likely benefit to accrue, transportation costs savings are a gross oversimplification of NED benefits calculation. It can also be argued that these so-called transportation cost savings are not a meaningful measure of anything related to the potential NED benefits and are extremely misleading in that they are, by definition, grossly larger than any potential NED benefits of reducing lock congestion.

Response to Comment B. With regard to the question of compatibility of the scenario based analysis and P&G, the scenario based evaluation process as described in the draft Interim Report is completely consistent with the P&G. Paragraph 1.4.13 of the P&G presents guidance on dealing with risk and uncertainty in the evaluation of alternative plans and Supplement 1 – *Risk and uncertainty –Sensitivity analysis* presents additional guidance. Paragraph 1.4.13 describes situations of uncertainty as those in which potential outcomes cannot be described in objectively known probability distributions. The guidance indicates that plans and their effects should be examined to determine the uncertainty inherent in the data or various assumptions and "A limited number of reasonable alternative forecasts that would, if realized, appreciably affect plan design should be considered." The guidance goes on to endorse performing a sensitivity analysis of the estimated benefits and costs of alternative plans using these alternative forecasts.

One of the areas of controversy with the scenario- based analysis as proposed in the Interim Report is that it does not assign probabilities to the scenarios (alternative forecasts). Supplement 1 to the P&G deals with this subject in some detail. First it recognizes that there are situations of uncertainty where outcomes cannot be described in objectively known probability distributions because future demographic, economic hydrologic, and meteorological events are essentially unpredictable because they are subject to random influences. The Corps believes that this describes the situation with respect to fifty-year forecasts of traffic on the Upper Mississippi River and Illinois Waterway System. While the P&G certainly allows for assigning subjectively based probabilities to random future events it does not endorse the approach and is very cautious in describing subjective probabilities indicating such an approach must be justified on a case-by-case basis and carefully qualified as subjective. The discussion in Supplement 1 indicates that P&G would clearly allow the treatment of alternative forecasts as equally probable for purpose of sensitivity analysis. Utilization of the P&G

results in the presentation of situations with varying outcomes with respect to the justification and net benefits and alternative plans based on alternative forecasts. The P & G provide guidance on the factors that should be considered in such circumstances including "reducing the irreversible or irretrievable commitment of resources;" the possibility that reducing uncertainty in selecting an alternative plan may involve increased cost or loss of benefits which is a subject the report discusses under the selection criteria of "risk"; public preference; and decision makers' attitudes toward risk which is also dealt with in the report.

Finally, Supplement 1, paragraph S2 of the P&G indicates that the planner's primary role in dealing with risk and uncertainty is "to characterize to the extent possible the different degrees of risk and uncertainty and to describe them clearly so that decisions can be based on the best available information." The Corps and the Federal Principals Task Force believe that the scenario-based analysis as described in the Interim Report is the best way to accomplish that objective.

The goal of the planning process for the Upper Mississippi River Navigation study is to develop plans that offer the best means of meeting the multiple needs and opportunities that have been identified in the project area. The Corps believes that by analyzing a range of possible futures and comparing alternative plans with those possible future conditions, it can offer decision makers a range of investment choices that will function well over a number of possible futures.

On the question of describing the study objective as reduction of lock congestion, we agree that categorization of the objective in this way tends to prescribe an outcome. The objective should be categorized as increasing navigation economic efficiency or increasing the efficiency of the navigation system. We will make the appropriate changes in the Interim Report.

The issue of transportation savings as an NED benefit has been addressed in the response to comment B.

C. Due to the lack of required sensitivity, the Corps may make no further use of this Interim Report.

In recognizing that the future is uncertain, the Corps has for many years routinely included, at a minimum, a sensitivity analysis in its feasibility studies. A sensitivity analysis is designed to explore the robustness of potential recommendations to future unknown changes in critical economic, operational, and environmental parameters. Sensitivity analysis is preferred to scenario-based planning and should be the minimum standard for evaluating scenarios, risks, and uncertainties inherent in forecasting fifty years into the future.

With this Draft Interim Report, the Corps has failed to establish the without project conditions accurately, objectively, and according to clear guidelines established by

NEPA, P&G, and the Corps' implementing regulations. Because of these violations, the Corps cannot not use this Draft in the final study and hope to remain in compliance with the law.

Response to Comment C. As indicated in the response to Comment B, the Corps and Federal Principals Task Force believe the scenario based analysis is an appropriate way to deal with the uncertainty of projecting waterborne commerce over a 50- year period of analysis and that it is consistent with P&G. The Interim Report includes a discussion of the without project condition. The without project condition will be refined and further developed in the feasibility study.

In addition, the Corps has agreed to further evaluate the feasibility of developing scenario probabilities that could be applied as a sensitivity analysis in the feasibility study.

II. The Interim Report mischaracterizes, ignores, and contradicts the explicit recommendations of the National Academies of Sciences' NRC for the credible conduct of the UMRS Navigation Feasibility Study.

NRC evaluated the original study's economic, environmental, and engineering analyses in February 2000 in response to a request made by the Secretary of the Army to investigate irregularities previously disclosed to the U.S. Office of Special Counsel, and to formulate and evaluate potential recommendations.

NRC completed this investigation and evaluation in a February 2001 document entitled "Inland Navigation System Planning: The Upper Mississippi River-Illinois Waterway." In addition to evaluating the original study, the 129-page report offered many recommendations as to the directions and analyses for future study of UMRS. The Draft Interim Report characterizes the recommendations of NRC in a single paragraph:

> The NRC report included many recommendations, however, there were four conclusions that provided the main impetus for the restructured study. They are:
>
> 1. The study should include equal consideration of fish and wildlife resources,
> 2. The study should assess ongoing effects of the existing Nine-Foot Channel Project,
> 3. Defensible 50-year forecasts are unlikely to be achieved,
> 4. The Spatial Equilibrium Model used was incomplete and should be further developed. It also lacked sufficient data to support assumptions.
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> § 1.7.2.2 Draft Interim Report, 25.

The Draft Interim Report then offers these so-called "conclusions" as the reasons underlying the restructure of the UMRS study under a "new spirit of collaboration." Apparently, this new spirit of collaboration does not extend to NRC; nearly all of the

specific recommendations pertaining to the conduct of the restructured study's economic and engineering analyses have been mischaracterized or ignored completely.

A. The Corps' use of scenario-based analysis in the Draft Interim Report is contrary to the explicit recommendations of NRC.

NRC did not recommend the scenario-based analysis that the Corps has adopted. Instead, NRC recommended that whatever forecasting technique was employed to estimate future conditions of the system should explicitly account for the uncertainty inherent in the forecasts. National Research Council, Inland Navigation System Planning: The Upper Mississippi River – Illinois Waterway, 74-76 (National Academy Press, 2001). The Corps' scenario-based analysis for forecasting future traffic flows uses five discrete scenarios, selected by a single forecaster, Sparks Companies, Inc., whose corporate vision statement is "To be a vital force in the success of food and agricultural industries around the world."

These scenarios are then differentiated by export demands for agricultural products without an assessment of the probability that any of these forecasts actually approximate future demands. This is in clear conflict with the NRC recommendation of unequivocally recognizing and addressing the uncertainty in the forecasts of future demands. In fact, the NRC report explicitly states that scenario-based analyses, "can produce insights but it rarely produces useful estimates." Id., 65.

Furthermore, the NRC report did not state that "[d]efensible 50-year forecasts are unlikely to be achieved." § 1.7.2.2 Draft Interim Report, 25. Rather, the NRC report criticizes the original Corps study forecasts, stating that the "fault lies not in getting the forecasts wrong. It is impossible to accurately forecast barge movements 50 years into the future or to forecast the costs of a large construction project . . . . *[T]he Corps should have examined the uncertainties explicitly*" [emphasis added]. NRC, Inland Navigation System Planning, 48, 49. As NRC notes, defensible forecasts by their very nature must explicitly address the uncertainty associated with their eventuality. Scenario-based analyses serve the very useful purpose of beginning the process of understanding the uncertainty inherent in forecasting the future, but do not serve as a substitute for rigorous qualitative or quantitative analyses.

Response to Comment A. The use of scenario-based analysis is not contrary to the NRC recommendations. In discussing uncertainty analysis in its report the NRC examines sensitivity analysis, Monte Carlo analysis, scenario analysis, "Wait and See" and finding robust strategies. The NRC report indicates that each of these approaches can be helpful depending on what is known about the future. In discussing scenario analysis the NRC recognized that scenario analysis is a development of sensitivity analysis where particular values for each crucial variable are specified by sketching a particular future on the basis of some stated assumptions. The Corps believes that the scenario based approach is the best way to deal with the uncertainty of projecting traffic levels on the Mississippi River and Illinois Waterway System over a 50-year horizon.

Sparks Companies, Inc. are recognized as experts in agriculture trends and projections and related agricultural product transportation issues both in the United States and worldwide. The process of developing the scenarios was a very open process with the full range of economic and environmental interests groups within the region given the opportunity to interact with the Corps and its contractor and provide input and viewpoints on the various scenarios. An adaptive management concept will be used in formulating and implementing navigation improvement and ecosystem restoration plans. Environmental and economic conditions and responses will be monitored and analyzed to assure that the plans for navigation improvements and environmental restoration are efficient and effective and appropriately modified and adjusted to meet changing conditions and emerging science. The recommendation development process for the feasibility study will recognize the high level of uncertainty surrounding projections of navigation system traffic and it anticipates that decision makers will seek alternative plans that are justified under a wide range of future system traffic conditions and enjoy a broad level of stakeholder support. In this way the process of developing recommendations will incorporate several of the techniques of dealing with uncertainty which were discussed in the NRC report including sensitivity analysis, scenario analysis, a certain amount of "Wait and See" and seeking robust strategies which would be effective under a range of future conditions.

B. Corps use of TCM in the Draft Interim Report is a regression in economic theory that overstates NED benefits and contradicts NRC direction.

The NRC report states:

> As a result of flawed assumptions and data, the current (September 2000) results of the spatial equilibrium model and the ESSENCE model should not be used in the feasibility study. The problem lies not in the theoretical motivation behind these models, but in their implementation and data used as input. To correct these problems, the Corps should: (1) obtain a satisfactory database of grain and other relevant freight shipments by barge and alternative modes which includes quantity, origin and destination, and price are included, [*sic*] (2) revise the ESSENCE model, eliminating assumptions that shipment costs are proportional to distance and that agricultural yields are uniform, (3) estimate demand and supply sensitivities to price from studies of current data, and assure that model parameters reflect these price sensitivities, and (4) include spatial equilibrium concepts in its ESSENCE model.
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> NRC, Inland Navigation System Planning, 3.

The NRC report further states that the Corps' "endorsement of the theoretical concept of spatial equilibrium is commendable, because accepted theoretical concepts will form a more credible basis for benefit estimation than the approaches formerly used by the Corps." Id., 33.

The restructured study ignores all of these fundamental economic analysis recommendations and instead regresses to use TCM with ten-year-old data for evaluating the NED impacts of potential navigation system improvements; the spatial equilibrium-based NED model is relegated to a separate research track independent of the study.

Ignoring the NRC recommendations and adopting TCM renders the economic analysis of the restructured study completely meaningless because it employs the next-least-expensive alternative transportation mode between existing origins and destinations as the sole estimate of the NED benefits of navigation projects. NRC addressed this very issue when praising the advances made by the original study, asserting that

> the recognition that a shipper's willingness to pay for navigation services is more complex than simple next-least-expensive mode calculations, and that it might even involve alternative markets or other types of business decisions, is an advance over previous methods. These theoretical developments are most welcome, and efforts to transform these concepts into useful decision support models should continue.
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> Id., 37.

Using TCM for the restructured study is indefensible in light of the original study team's rejection of that model as inappropriate and the NRC recommendation to use the spatial NED model in the execution of the restructured navigation system study. TCM vastly overestimates NED benefits of immediate lock expansions when compared to evidence in the real national economy; its use in the restructured study casts grave doubts regarding the Corps' true collaborative intentions.

Response to Comment B. The Corps and the Federal Principals Group endorse the NRC findings on spatial equilibrium concepts. However, the Corps and the Federal Principals Group concluded that a fully developed and tested spatial equilibrium model was unlikely to be achieved in a reasonable time frame for feasibility study completion consistent with stakeholder and Congressional expectations. To fully comply with the NRC recommendations would have involved adding years to the study that has been ongoing since 1993 and also would have involved a significant increase in costs. There is also a high degree of uncertainty as to whether the kind of spatial model envisioned by the NRC is even possible. Therefore, the decision by the Corps and endorsed by the Federal Principals Group was to use an existing economic model. The Corps has committed to continue research and development on improved models, however it is unlikely that this effort will be completed in time for use in the feasibility study. An adaptive management process is being considered that would review study results as new models are developed, tested and accepted. The "Tow Cost Model" is discussed in the response to Comment IA.

C. The economic scope of the Draft Interim Report is inappropriate for the importance of the project under review.

The NRC report criticized the original study's purpose and scope for being too narrow. In response, the Corps commendably broadened the environmental scope of the original study. At the same time, however, the Corps has narrowed the economic scope for the restructured study to "reducing lock congestion." § 1.1, Draft Interim Report, 11. This economic scope is ill-defined and inappropriately narrows the economic perspective of such an important study. The broader and more fundamental economic scope should be restored to "providing an efficient navigation system."

For example, congestion at the locks can be reduced by simply reducing the number of tows arriving at the locks demanding lockage. With fewer arrivals at the system locks there would be less congestion at the locks, but this is not what the Corps means by reducing congestion at the locks. The broader and more fundamental economic scope should be restored to "providing an efficient navigation system that contributes to National Economic Development."

This broader scope embraces the fact that potential investments in UMRS have both beneficial NED consequences, like reducing water transportation costs, and negative NED consequences, like consuming scarce resources that could otherwise be productively employed elsewhere in the national economy.

Response to Comment C. Concur; see response to comment I (b), above. The appropriate changes will be made in the Interim Report.

D. The Corps has ignored NRC recommendations on methods of estimating costs of the project.

The NRC report made two important recommendations regarding future engineering analyses for UMRS. It noted that the rehabilitation costs savings estimates of lock extensions should be re-estimated in light of new alternative forecasts of future system traffic levels and that the real construction costs of large-scale measures were subject to great uncertainties and should be revisited by the Corps. NRC, Inland Navigation System Planning, 59. The restructured study ignores these two critical recommendations and offers no insights as to how the Corps will re-estimate these critical cost categories.

Response to Comment D. The comment is correct in identifying that the relationship between rehabilitation and potential large scale measures needs to be revisited in light of the new traffic forecasts. This will be accomplished in the feasibility study. In regards to the accuracy of the construction cost estimates, these costs have been independently reviewed recently and found to be within reasonable limits for this type of construction.

E. Finally, the Corps has neglected to secure independent peer review for the restructured study.

NRC recommended an independent peer review for this study. It stated, "[l]arge and important projects such as the proposed lock extensions on the UMR-IWW [UMRS]

would benefit from a second opinion." Id., 60. The Draft Interim Report makes no mention of a provision for independent peer review. The NRC report goes so far as to state that the "careful scrutiny of the analysis" in "important decisions - particularly ones involving more than $1 billion of construction . . . is crucial." Id. An independent peer review should be proposed at the conclusion of the Corps' restructured study to provide that valuable second opinion recommended by NRC.

In fact, the Corps decision to use the TCM model would benefit from an immediate peer review (perhaps conducted by the NRC) as this decision alone charts a study course destined to produce NED evaluations of the navigation system that are without any foundation in reality.

Response to Comment E. The feasibility study will include an independent technical review for the products that will be developed during this process. An independent technical review of the scenarios is ongoing. A peer review of the feasibility report is under consideration.

III. The Interim Report constitutes a significant step backwards in Corps planning to the detriment of the true system stakeholders, the taxpayers.

A. The five unconstrained forecasts of future demand scenarios are of little use in determining the constrained without project futures.

The newly-created five unconstrained forecast scenarios described in the Draft Interim Report cannot establish the without project conditions. *See* § 2.4.3.1 Draft Interim Report, 63-74. Any without project traffic forecasts are, by definition, constrained by the without project operating conditions of the navigation system itself. Consequently, unconstrained forecasts have little to do with establishing the constrained without project futures.

In addition, the unconstrained forecasts of future demand scenarios are analytically deficient; all five forecasts were constructed without regard to potential transportation system costs and prices in the multiple without project conditions. How can the restructured study meaningfully forecast future without project demands for any so-called scenario without a forecast of future prices that impact those demands?

Furthermore, the interdependence between the levels of demand for water transportation of agricultural and non-agricultural products as they compete for use of scarce barge supplies in the without project future are completely ignored in the construction of the five unconstrained traffic scenarios. A single estimate of future system traffic for non-agricultural-related products is added to each of the five agricultural product traffic estimates to produce five traffic scenarios. Forecasting traffic flows independently ignores the competition between products for use of the scarce privately-supplied resources and likely will overstate traffic for all the scenarios.

Response to Comment A. The development of unconstrained projections of future river traffic is only a step in the benefit evaluation process. The unconstrained forecasts are inputs to a benefits model that measures the capacity of the navigation system with and without the navigation improvements including the response to increased congestion and cost. The development of unconstrained forecasts is a step that was required for the model used earlier in the study as well as the Tow Cost Model.

B. TCM vastly overstates NED benefits to provide favorable recommendations for immediate, large-scale improvements to UMRS.

TCM necessarily overstates the direct NED transportation benefits of system actions designed to reduce congestion to system users. Regressing to a discredited, self-serving economic model such as TCM, as mandated by Corps headquarters, is guaranteed to overstate the benefit of potential system actions; this is indefensible, not supported by the study team economists, and completely counter to NRC recommendations and a credible economic analysis.

Given the relatively small economic benefits of reducing existing lock congestion, the importance of establishing the values of lock condition-related investments in the with project future relative to the without project futures is critically important to establishing the potential economic benefits of alternatives primarily designed to reduce system congestion. The original study made great strides in extending the state of the art for measuring the value of condition-related system investments. Rather than discard these advances by claiming that they are "beyond the state of the art," the state of the art should be pushed forward to better measure the future condition-related requirements for UMRS with or without navigation improvements. The credibility of study conclusions can only be improved with a rigorous analysis of the potential benefits and costs of condition-related investments in the navigation system.

Response to Comment B. See the response to Comment I A. It is also important to recognize that the Tow Cost Method is a benefit model that will provide information to help formulate alternatives, however, it is not the decision model. The recommended plan will be developed through a collaborative process with the stakeholders of the system and other Federal interests. Additional information that will be considered in this process includes the contributions to National Ecosystem Restoration, Regional Economic Benefits, the degree to which the plan contributes to National Economic Development and National Ecosystem Restoration under a range of scenarios, the risk of selecting the wrong plan, flexibility and adaptability of the plan, acceptability to basin interests including other Federal and state agencies as well as the general public, and funding constraints including cost sharing issues.

C. The Draft Interim Report mischaracterizes and misrepresents traffic forecasts to inflate the need for immediate, large-scale improvements to UMRS.

Throughout the Draft Interim Report, the Corps makes several self-serving statements unsupported by facts:

1. The statement that the "greater the unconstrained waterway traffic demand, the greater the potential base of transportation savings to be realized" is meaningless and irrelevant to the evaluation of potential measures to increase the economic efficiency of the navigation system. § 2.5.3.1 Draft Interim Report, 112. The statement should therefore be removed.

2. The statement that the "magnitude of the investment required to realize a gain in system efficiency is directly related to the level of unconstrained waterway traffic" may not be true. Id. In fact, the lower the cost of measures to improve system efficiency, the more likely it is that efficiency can be improved. For example, low-cost, small-scale measures such as congestion fees, tradable permits, or helper boats may have a much greater increase in efficiency than the implementation of costly large-scale measures such as lock expansions. The statement should be removed until a real, unbiased economic analysis is completed.

3. The statement that the "lower portion of the system, where traffic is the greatest, must be addressed first if an improvement in system efficiency is to be realized" may or may not be true dependent upon the interaction of future traffic patterns and the cost of measures designed to improve the operating characteristics of the lower system locks. Id. The statement should be removed until a real, unbiased economic analysis is completed.

4. The statement that "[c]apacity expansion at Locks 20-25 may be economically justified under a number of scenarios" is misleading and premature. Id. The scenarios under which capacity expansions may be economically justified may have little or no chance of ever occurring. Furthermore, without any evaluation of system users' willingness to pay under these hypothetically-constructed traffic scenarios, no meaningful justification of any capacity expansions or other system actions can be made. The one true statement that can be made right now is that capacity expansions are not justified given the current flat or declining traffic levels evidenced in the system and the current observable prices that system users do and are willing to pay right now.

In fact, during the ten-year period beginning in 1992 through 2001, which roughly corresponds with the duration of this study, the number of barges processed annually at Locks 20-25 has decreased by over 20 percent. This decrease has occurred without any increase in congestion in the system. It would be quite unusual to increase system congestion by decreasing system usage! How can the Corps credibly make the statement that capacity expansion (to reduce congestion) may be economically justified under a number of scenarios when recent history and current evidence overwhelming support exactly the opposite conclusion?

Response to Comment C. The preliminary observations contained in the Interim Report support no feasibility level recommendations. They were provided to give a sense

of the impacts the unconstrained traffic forecasts would have on the analysis, and spatial characteristics of the traffic on the system.

D. Due to the defects in the Corps' methodology, the Draft Interim Report does not effectively analyze project alternatives.

The original UMRS feasibility study was directed and designed to preserve the distributional characteristics of the critical data employed in the formulation and evaluation of alternative plans. Scenario-based without project futures do not preserve or even consider the likelihood of these scenarios occurring and, therefore, are a decided step backwards in the rigor of standard Corps analysis.

It is impossible to formulate real alternatives to address the problems and opportunities of a future without project condition for UMRS when the future without project conditions described in this draft interim report are so poorly specified. There is no discussion whatever of what the future without project economic conditions might look like; there are only five unconstrained forecasts of future traffic levels without any assessment of their likelihood of occurrence. As the Corps well knows, the future without project conditions (and for that matter the future with project conditions) are most certainly constrained by both the physical operating characteristics of the system improved (or not) and the willingness of users to pay for the cost of supplying inland waterway navigation.

Furthermore, the Draft Interim Report drops the original study's constrained federal budget analyses, claiming that "the need for a constrained budget scenario diminished over time." § 1.7.1.4 Draft Interim Report, 19. Constrained budget scenarios are more important than ever given the recent forecasts of federal government budget deficits for the foreseeable future. The study was originally directed to consider alternatives formulated for and evaluated in the light of budget constraints. This requirement should be maintained for the restructured study. Real budget constraints can dramatically alter the best set of alternatives for managing UMRS in the future. The omission of budget-constrained analyses is a fundamental error in examining the robustness of potential recommendations.

The navigation alternatives described in the draft interim report appear to be just the same old set of alternatives that the Corps was advocating during the original study, with the possible appendage of some very vague tiered ecosystem enhancement alternatives. These environmental IOU's and navigation alternatives taken together appear to be designed to whet the funding appetites of local environmental groups and make navigation system improvements more palatable to them. The Corps seems to be attempting to broaden the local support coalition at the expense of the taxpayers at large.

Response to Comment D. On the question of probability of occurrence of the scenarios, the premise for constructing the scenarios was that they are all plausible. A process that displays the evaluation of navigation improvements and ecosystem restoration measures under a range of plausible future conditions, particularly in view of

the high degree of uncertainty associated with future levels of system traffic, facilitates decision-making. Options for identifying probabilities as part of a sensitivity analysis will be explored in the feasibility study. With regard to the unconstrained traffic level estimates, as explained in the response to comment III A, the unconstrained traffic levels are a step in the process and are inputs to a benefit estimating model which considers the physical constraints of the system and the willingness to pay for water based transportation. On the question of budget constrained analysis, the principles of benefit/cost analysis require that an investment be assessed using an efficient construction schedule. Effective establishment of budget and appropriations process priorities are often done on the basis of an efficient construction schedule.

CONCLUSION

The Corps seems to conclude that the integration of the multiple uses of UMRS would be better if the Corps had integrated authority for "funding" and "oversight" of the system activities of Navigation Improvements, Operation and Maintenance, Ecosystem Restoration, and Flood Control. *See* § 4 Draft Interim Report, 120-121. PEER does not believe it is in the interest of anyone to make the Corps omnipotent on this or any system. Checks and balances to Corps authority are needed to prevent the kind of self-serving conclusions reached by Corps senior managers and commanders, as clearly evidenced by their behavior in this original study.

The recommendation to continue the development of the spatial equilibrium model independent of this study, and return to the previously abandoned TCM, is a sad and regrettable recommendation. This proposal is completely counter to the Corps' self-proclaimed "new spirit of collaboration;" its use is transparently self-serving for the Corps and the navigation industry, as it will conclude that you cannot build lock expansions fast enough to keep up with the constructed unconstrained traffic forecasts. This model employs the same economic logic that justified the wasteful expenditures on the Tennessee-Tombigbee Waterway, and the continuing overbuilding of the navigation system on the Ohio River.

With no new economic analysis evidenced in this document, it is very difficult to come to any conclusions or recommendations no matter how preliminary they may be. As such, the Corps should make no further use of the Draft Interim Report until competent economic analysis has been completed using an appropriate economic model.

Sincerely,

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Executive Director

Kathleen Timmins
Environmental Law Clerk

CC: American Rivers
Audubon
Illinois Department of Natural Resources
Illinois Department of Transportation
Iowa Department of Natural Resources
Iowa Department of Transportation
Midwest Area River Coalition 2000
Minnesota Department of Agriculture
Minnesota Department of Natural Resources
Minnesota Department of Transportation
Mississippi River Basin Alliance
Missouri Department of Conservation
Missouri Department of Natural Resources
Missouri Department of Transportation
National Corn Growers
The Izaak Walton League of America
The Nature Conservancy
U.S. Department of Transportation, Maritime Administration
U.S. Fish and Wildlife Service
U.S. Geological Study
U.S. Environmental Protection Agency
Upper Mississippi, Illinois and Missouri River Association
Upper Mississippi River Conservation Committee
Upper Mississippi River Basin Association
Wisconsin Department of Natural Resources
Wisconsin Department of Transportation
Wisconsin Governor's Office